WHAT IS CLAIMED IS:

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- A process for the removal of sulfur-oxidated compounds from a hydrocarbonaceous stream containing sulfur-oxidated compounds wherein the process comprises:
- 5 (a) contacting a hydrocarbonaceous stream containing sulfur-oxidated compounds with an adsorbent which selectively adsorbs sulfur-oxidated compounds to produce an adsorbent having adsorbed sulfur-oxidated compounds;
 - (b) contacting the adsorbent having adsorbed sulfur-oxidated compounds with a desorbent to produce a desorbent containing sulfur-oxidated compounds and an adsorbent having a reduced content of sulfur-oxidated compounds;
 - (c) contacting the adsorbent from step (b) with a hydrocarbonaceous stream containing sulfur-oxidated compounds;
 - (d) fractionating the desorbent containing sulfur-oxidated compounds from step (b) to recover a desorbent having a reduced concentration of sulfur-oxidated compounds; and
 - (e) recovering a hydrocarbonaceous stream containing a reduced concentration of sulfur-oxidated compounds.

- 2. The process of claim 1 wherein the hydrocarbonaceous stream containing sulfur-oxidated compounds boils in the range from about 149°C (300°F) to about 538°C (1000°F).
- 3. The process of claim 1 wherein the sulfur-oxidated compounds are selected from the group consisting of sulfoxides and sulfones.
- 4. The process of claim 1 wherein the adsorbent is selected from the group consisting essentially of activated charcoal, hydrotalcite, ion exchange resin, zeolites, silica-alumina, and silica gel.
- The process of claim 1 wherein the adsorbent having adsorbed sulfur-oxidated
 compounds contains from about 0.2 to about 2 weight percent sulfur-oxidated
 compounds.
 - 6. The process of claim 1 wherein the contacting in step (a) is conducted at a temperature from about 25°C (77°F) to about 125°C (257°F) and a pressure from about 1240 kPa (165 psig) to about 1825 kPa (250 psig).
- 7. The process of claim 1 wherein the desorbent in step (b) is introduced at a temperature from about 43°C (110°F) to about 125°C (257°F).
 - 8. The process of claim 1 wherein the desorbent comprises pentane, hexane, benzene, toluene, or xylene.

- 9. The process of claim 1 wherein the fractionating in step (d) is conducted in a split shell fractionation zone.
- 10. The process of claim 1 wherein at least a portion of the desorbent having a reduced concentration of sulfur-oxidated compounds recovered in step (d) is recycled to step (b).
- 11. The process of claim 1 wherein the hydrocarbonaceous stream comprises diesel boiling range hydrocarbons.
- 12. A process for the removal of sulfur-oxidated compounds from a
 hydrocarbonaceous stream containing sulfur-oxidated compounds wherein the process
 comprises:
 - (a) contacting a hydrocarbonaceous stream containing sulfur-oxidated compounds with an adsorbent which selectively adsorbs sulfur-oxidated compounds to produce an adsorbent having adsorbed sulfur-oxidated compounds;
 - (b) contacting the adsorbent having adsorbed sulfur-oxidated compounds with a purge stream to displace interstitial hydrocarbons;
 - (c) contacting the adsorbent having adsorbed sulfur-oxidated compounds from step (b) with a desorbent to produce a desorbent containing sulfur-

oxidated compounds and an adsorbent having a reduced content of sulfuroxidated compounds;

- (d) contacting the adsorbent from step (c) with a hydrocarbonaceous stream containing sulfur-oxidated compounds;
- (e) fractionating the desorbent containing sulfur-oxidated compounds from step (c) to recover a desorbent having a reduced concentration of sulfur-oxidated compounds; and
 - (f) recovering a hydrocarbonaceous stream containing a reduced concentration of sulfur-oxidated compounds.
- 10 13. The process of claim 12 wherein the hydrocarbonaceous stream boils in the range from about 149°C (300°F) to about 538°C (1000°F).
 - 14. The process of claim 12 wherein the sulfur-oxidated compounds are selected from the group consisting of sulfoxides and sulfones.
- The process of claim 12 wherein the adsorbent is selected from the group
 consisting essentially of activated charcoal, hydrotalcite, in exchange resin, zeolites,
 silica-alumina, and silica gel.
 - 16. The process of claim 12 wherein the adsorbent having adsorbed sulfur-oxidated compounds contains from about 0.2 to about 2 weight percent sulfur-oxidated compounds.

- 17. The process of claim 12 wherein the contacting in step (a) is conducted at a temperature from about 25°C (77°F) to about 125°C (257°F) and a pressure from about 1240 kPa (165 psig) to about 1825 kPa (250 psig).
- 18. The process of claim 12 wherein the desorbent in step (c) is introduced at a temperature from about 43°C (110°F) to about 125°C (257°F).
 - 19. The process of claim 12 wherein the desorbent comprises pentane, hexane, benzene, toluene, or xylene.
 - 20. The process of claim 12 wherein the fractionating in step (e) is conducted in a split shell fractionation zone.
- 10 21. The process of claim 12 wherein at least a portion of the desorbent having a reduced concentration of sulfur-oxidated compounds recovered in step (e) is recycled to step (c).
 - 22. The process of claim 12 wherein the hydrocarbonaceous stream comprises diesel boiling range hydrocarbons.
- 15 23. The process of claim 12 wherein the purge stream boils in a temperature range lower than that of the desorbent.
 - 24. The process of claim 12 wherein the purge stream comprises pentane or hexane.

- 25. The process of claim 12 wherein an exiting purge stream is fractionated in a split shell fractionation zone.
- 26. The process of claim 25 wherein at least a portion of the exiting purge stream is recycled to step (b).
- 5 27. A process for the removal of sulfur-oxidated compounds from a hydrocarbonaceous stream containing sulfur-oxidated compounds wherein the process comprises:
 - (a) contacting a hydrocarbonaceous stream containing sulfur-oxidated compounds with an adsorbent which selectively adsorbs sulfur-oxidated compounds to produce an adsorbent having adsorbed sulfur-oxidated compounds;
 - (b) contacting the adsorbent having adsorbed sulfur-oxidated compounds with a purge stream to displace interstitial hydrocarbons;
 - (c) contacting the adsorbent having adsorbed sulfur-oxidated compounds from step (b) with a desorbent to produce a desorbent containing sulfur-oxidated compounds and an adsorbent having a reduced content of sulfur-oxidated compounds;
 - (d) contacting the adsorbent from step (c) with a hydrocarbonaceous stream containing sulfur-oxidated compounds;

- (e) fractionating the desorbent containing sulfur-oxidated compounds from step (c) to recover a desorbent having a reduced concentration of sulfur-oxidated compounds;
- (f) fractionating the purge stream from step (b) to recover a purge liquid having a reduced concentration of interstitial hydrocarbons; and
- (g) recovering a hydrocarbonaceous stream containing a reduced concentration of sulfur-oxidated compounds.